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National Institute of
Environmental Health Sciences

Temperature drops and the onset of severe avian influenza A H5N1 virus outbreaks

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Abstract:

Global influenza surveillance is one of the most effective strategies for containing outbreaks and preparing for a possible pandemic influenza. Since the end of 2003, highly pathogenic avian influenza viruses (HPAI) H5N1 have caused many outbreaks in poultries and wild birds from East Asia and have spread to at least 48 countries. For such a fast and wide-spreading virulent pathogen, prediction based on changes of micro- and macro-environment has rarely been evaluated. In this study, we are developing a new climatic approach by investigating the conditions that occurred before the H5N1 avian influenza outbreaks for early predicting future HPAI outbreaks and preventing pandemic disasters. The results show a temperature drop shortly before these outbreaks in birds in each of the Eurasian regions stricken in 2005 and 2006. Dust storms, like those that struck near China's Lake Qinghai around May 4, 2005, exacerbated the spread of this HPAI H5N1 virus, causing the deaths of a record number of wild birds and triggering the subsequent spread of H5N1. Weather monitoring could play an important role in the early warning of outbreaks of this potentially dangerous virus.

Source: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1794318

Resource Description

Communication: ⊠

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

 A focus of content

Communication Audience: ⊠

audience to whom the resource is directed

 Public

Early Warning System: ⊠

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

 A focus of content

Exposure : ⊠

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☐

weather or climate related pathway by which climate change affects health

 Temperature

Temperature: Extreme Cold

Geographic Feature: ☒

resource focuses on specific type of geography

 None or Unspecified

Geographic Location: ☒

resource focuses on specific location

 Non-United States

Non-United States: Asia

Asian Region/Country: China

Health Impact: ☒

specification of health effect or disease related to climate change exposure

 Infectious Disease

Infectious Disease: Airborne Disease

Airborne Disease: Influenza

Mitigation/Adaptation: ☒

mitigation or adaptation strategy is a focus of resource

 Adaptation

Resource Type: ☒

format or standard characteristic of resource

 Research Article

Timescale: ☒

time period studied

 Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

 A focus of content